

SUPPORT FOR THE AMENDMENTS

The present amendment cancels claim 9, and amends claim 8.

Support for the amendment to claim 8 is found at specification page 3, lines 1-4, page 4, lines 8-14, and Figure 1, as well as now cancelled claim 9.

It is believed that these amendments have not resulted in the introduction of new matter.

REMARKS

Claims 8 and 10-18 are currently pending in the present application. Claim 9 has been cancelled, and claim 8 has been amended, by the present amendment. Claims 14-18 stand withdrawn from consideration by the Examiner as being directed to a non-elected invention.

Applicants wish to extend their appreciation to Examiner Leong for withdrawing the rejections under 35 U.S.C. §§ 102(b) and 103(a).

The rejection of claims 8-13 under 35 U.S.C. § 112, first paragraph (enablement), is respectfully traversed.

The Official Action alleges that the specification does not enable a skilled artisan to practice the claimed method of growing a thin bipolar gallium nitride film on a sapphire substrate without undue experimentation.

The standard for determining whether the specification satisfies the enablement requirement is whether a skilled artisan could make or use the claimed invention from the disclosure in the specification coupled with information known in the art without undue experimentation. See 35 U.S.C. § 112, first paragraph, and MPEP §§ 706.03(c) and 2164.

Applicants respectfully submit that the present specification provides those of ordinary skill in the art with a detailed disclosure of carrying out the claimed method of growing a thin bipolar gallium nitride film on a sapphire substrate, wherein the method involves subjecting the sapphire substrate, which already has arranged on a surface thereof a Ga face and a N face, to H₂ cleaning in order to grow the Ga face in the (+c) direction, and then treating the sapphire substrate, which has been subjected to H₂ cleaning, with a nitric acid solution in order to grow the N face in the (-c) direction (See e.g., page 3, lines 1-4, page 4, lines 8-14, and Figure 1).

Applicants therefore respectfully submit that a skilled artisan would in fact be able to practice the entire scope of the presently claimed invention without undue experimentation based on the teachings of the present specification, which provides those of ordinary skill in the art with a detailed disclosure of carrying out the claimed method of growing a thin bipolar gallium nitride film on a sapphire substrate.

Withdrawal of this ground of rejection is respectfully requested.

The rejection of claims 8-13 under 35 U.S.C. § 112, second paragraph, is obviated by amendment, with respect to claims 8 and 10-13, which incorporates into claim 8 the limitations of now cancelled claim 9.

Claim 8 is considered to be indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as their invention with respect to the recited limitations of “0 minutes to 10 minutes,” “a Ga face (+c)” and “a N face (-c).”

Amended claim 8 recites a method for growing a thin bipolar gallium nitride film on a sapphire substrate, said method comprising: subjecting the sapphire substrate having arranged on a surface thereof a Ga face and a N face to H₂ cleaning to *grow the Ga face in a (+c) direction*; and treating the sapphire substrate, which has been subjected to H₂ cleaning, with a nitric acid solution having a nitric acid concentration of 6-63 % to *grow the N face in a (-c) direction*, wherein said treating is carried out at a temperature of 40°C for a period of *10 seconds to 10 minutes*, to thereby produce the thin bipolar gallium nitride film having a Ga face (+c) and a N face (-c) grown on the sapphire substrate.

Applicants respectfully submit that the phrases “10 seconds to 10 minutes,” a “Ga face in a (+c) direction” and a “N face in a (-c) direction” are in fact definite to a skilled artisan, since chemists and chemical engineers are reasonably apprised as to the meaning of these phrases, especially in light of the disclosure provided in the present specification (See e.g., page 3, lines 1-4, page 4, lines 8-14, and Figure 1).

Since the meaning of the claimed subject matter is likely already understood, or can at least be readily determined by a skilled artisan in light of the disclosure provided in the present specification, the claimed subject matter is considered to be definite and thus satisfies the requirements of 35 U.S.C. § 112, second paragraph.

Withdrawal of this ground of rejection is respectfully requested.

In conclusion, Applicants submit that the present application is now in condition for allowance and notification to this effect is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon



David P. Stitzel
Attorney of Record
Registration No. 44,360

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)